

RENYI, GY.

Breeding in vitro of wheat embryos; a fragment of a doctor's thesis. p. 463.
(MAGYAR MEZGAZDASAG. Vol. 9, no. 4, 1956. Hungary)

SC: Monthly List of East European Accessions (EEAL) IC, Vol. 6, no. 6, June 1957. Uncl.

REDDIS, A. K.

REDDIS, A. K. "Survey of the Effectiveness of the System of Measures for Control of Cotton Pests and Diseases," Itoги Nauchno-Issledovatel'skikh Rabot Vsesoiuznogo Institut- Zashchity Rastenii za 1935 Goda, 1936, pp. 245-248. 423.92 L541.

So: SIRA SI-00-53, 15 Dec. 1953

REDEI, D.; D'YERFFI, B.; MAKO, I.; VAROTSI, Ye.

Conversion of a winter wheat to a spring variety. Izv. AN SSSR.
Ser. biol. no.5:46-54 S-0 '54. (MLRA 7:9)

1. Institut genetiki Vengerskoy Akademii nauk. Budapesht.
(Wheat)

REDEI, G.

Production of wheat-rye hybrids (Triticale) ² A. Kiss and G. Rédei (Növénytermelés, 1952. 1. 67-84). Work on wheat-rye hybrids since 1948 is reported. The quality of the wheat-rye flour is claimed to be good. Data from numerous hybrids is recorded and discussed. A. STORFER.

REDEI, I.

Control of bar-forces arising in plane trusses. Acta techn
Hung 46 no. 3/4:349-369 '64.

1. Institute for Railway Planning of the Hungarian State
Railways, Budapest.

J. RUDSI

"Class distinction in the population of Hungary according to the results of the 1949 census. Tr. from the Hungarian." p. 371. "Cucurbita ficifolia Sche, a new sort of gourd. Bulletin." p. 9. (ZA SOCIALISTICKÉ ZEMEDELSTVÍ, Vol. 2, no. 3, Mar. 1952, Praha, Czechoslovakia.)

SO: Monthly List of East European Accessions, L.C., Vol. 2 No. 7, July 1953, Uncl.

1955, 3.

Technical tasks in connection with the preparation of organic manure.
p. 444. (MAGYAR TECHNIKA, Budapest, Hungary), Vol. 9, No. 8, Aug. 1954.

10: Monthly List of East European Accessions, (SEAN), 10, Vol. 4,
No. 5, May 1945.

Redei, L.

REDEI, L.: On the Support Plane Functions of Convex Bodies.

Redei, L. Über die Stützebenenfunktion konvexer Körper.
Math. Naturwiss. Anz. Ungar. Akad. Wiss. 60, 64-69
(1941). (Hungarian. German summary)

Für den bekannten Satz von Minkowski über die charakteristischen Eigenschaften der Minkowskischen Stützebenenfunktionen konvexer Körper [s. Bonnesen und Fenchel, Theorie der konvexen Körper, Ergebnisse der Math., Bd. 3, H. 1, Springer, Berlin, 1934, S. 164] wird ein einfacher Beweis mitgeteilt, in dem die geometrische Bedeutung des Verfahrens klar hervortritt. *Author's summary.*

Source: Mathematical Reviews,

Vol 9 No. 6

Redei, L.

REDEI, L.: On a Diophantic Approximation in the Field of Algebraic Numbers.

Math

Rédei, L. Über eine diophantische Approximation im Bereich der algebraischen Zahlen. Math. Naturwiss. Anz. Ungar. Akad. Wiss. 61, 460-470 (1942). (Hungarian. German summary)

The author proves the following theorem. Let α be a real algebraic number, $|\alpha| = 1$. A necessary and sufficient condition that the sequence $\alpha^n - [\alpha^n]$ should converge is that α is an algebraic integer and all conjugates of α are less than 1 in absolute value. If this condition is satisfied, then $\lim_{n \rightarrow \infty} (\alpha^n - [\alpha^n]) = 0$. [The same result was proved by Vijayaraghavan, Proc. Cambridge Philos. Soc. 37, 349-357 (1941); these Rev. 3, 274.] P. Erdős (Syracuse, N. Y.)

6700

Source: Mathematical Reviews.

Vol 9 No. 6

Rédei, Ladislaus

Rédei, Ladislaus. Über den geraden Teil der Ringklassen-
 gruppe quadratischer Zahlkörper, die Pell'sche Gleichung
 und die Diophantische Gleichung $x^2 + y^2 = z^2$. I.
 Math. Naturwiss. Anz. Ungar. Akad. Wiss. 62, 13-34
 (1943). (Hungarian. German summary)

Rédei, Ladislaus. Über den geraden Teil der Ringklassen-
 gruppe quadratischer Zahlkörper, die Pell'sche Gleichung
 und die Diophantische Gleichung $x^2 + y^2 = z^2$. II.
 Math. Naturwiss. Anz. Ungar. Akad. Wiss. 62, 35-47
 (1943). (Hungarian. German summary)

Rédei, Ladislaus. Über den geraden Teil der Ringklassen-
 gruppe quadratischer Zahlkörper, die Pell'sche Gleichung
 und die Diophantische Gleichung $x^2 + y^2 = z^2$. III.
 Math. Naturwiss. Anz. Ungar. Akad. Wiss. 62, 48-62
 (1943). (Hungarian. German summary)

As an application of the results obtained by the author
 in two previous papers [same Anz. 59, 829-841 (1940);
 J. Reine Angew. Math. 186, 80-90 (1944); these Rev. 7,
 369, 111] regarding the structure of the group of ideal
 classes (in the widest sense) of an algebraic number field of
 finite order, the quadratic number field $k = \mathbb{R}(\sqrt{d})$ is consid-
 ered and the even part (i.e., the invariants 2^n) of the group
 of k -classes is investigated. As a result of these investi-
 gations a complete survey is given of the existence of
 solutions of Pell's equation; furthermore, the Diophantine
 equations $x^2 + y^2 = 1$ and $x^2 + y^2 = 2$, called the equations
 of Dirichlet (the first of which can be considered as a gener-
 alization of Pell's equation), and the equations $x^2 + y^2 = s^2$,
 $x^2 + y^2 = 2s^2$ are also investigated (γ and s denote rela-
 tively prime integers). Part II contains the investigation
 of the (ring-) class fields K_n for which K_n/k is cyclic of
 order 2^n ; the results of H. Reichardt [J. Reine Angew.
 Math. 170, 75-82 (1933)] are generalized; Part III contains
 the construction of the class fields K_n ; a mistake contained
 in the paper of Reichardt cited above is corrected. A fourth
 part and a summarizing paper in German are to appear
 later.
 A. Rényi (Budapest).

SMW
1943

Source: Mathematical Reviews,

Vol. No.

Rédei Ladislaus

Rédei, Ladislaus. Ein Anwendung der hypergeometrischen Polynoms $1-x-x^2$ im Zusammenhang mit der Theorie der quadratischen Reste. Math. Naturwiss. Anz. Ungar. Akad. Wiss. 62, 335-348 (1943). (Hungarian. German summary)

This paper is concerned with the problem of the distribution of quadratic residues. For p an odd prime the author defines four classes of integers H_{σ} ($\sigma^2 \equiv 1 \pmod{p}$) as consisting of those integers a for which

$$\left(\frac{a-1}{p}\right) = \rho, \quad \left(\frac{a}{p}\right) = \sigma, \quad 2 \leq a \leq p-1,$$

where these are Legendre symbols. Denote by $f_{\sigma}(x)$ the polynomial whose roots are the members of H_{σ} , without repetition. By a theorem of Lagrange the degree of f_{σ} is $d_{\sigma} = [\frac{1}{2}(p - \rho\sigma - 1)]$. The author considers the problem of finding the coefficients of $f_{\sigma}(x)$ modulo p . If $F(\alpha, \beta, \gamma; \nu)$ denotes the hypergeometric function the author proves that $f_{\sigma}(x)$ is congruent modulo p to the polynomial of degree d_{σ} obtained by truncating the function

$$F\left(\frac{1}{2}(\sigma+2), \frac{1}{2}(2\rho\sigma+2p+\sigma), 1+\frac{1}{2}p; x\right).$$

Hence the elementary symmetric functions of the members of the class H_{σ} are readily obtained modulo p .
D. H. Lehmer (Berkeley, Calif.)

SM

Source: Mathematical Reviews.

Vol. 9

No. 7

REDEI, LADISLAUS

Field, Algebra 4

Rédei, Ladislaus. Bemerkung zu einer Arbeit von R. Fueter über die Klassenkörpertheorie. Acta Univ. Szeged. Sect. Sci. Math. 11, 37-38 (1946).

L'auteur fait remarquer que le résultat suivant de Fueter [Jber. Deutsch. Math. Verein. 20, 1-47 (1911), p. 46]: si $D \equiv 1 \pmod{\delta}$, la parité du nombre des classes d'idéaux contenues dans un genre du corps $k(\sqrt{-D})$ (où k est le corps rationnel) est une condition nécessaire pour que la norme de l'unité fondamentale de $k(\sqrt{D})$ soit -1 , est tautologique, car il résulte d'un travail de l'auteur et de Reichardt [J. Reine Angew. Math. 170, 69-74 (1933)] que, si $D \equiv 1 \pmod{\delta}$, les genres du corps $k(\sqrt{-D})$ contiennent toujours un nombre pair de classes d'idéaux. Ensuite, l'auteur indique qu'il existe des relations véritables entre les groupes de classes d'idéaux de $k(\sqrt{-D})$ et de $k(\sqrt{D})$, tels

le résultat du travail précédent de l'auteur que la divisibilité par 4 des invariants pairs du premier groupe entraîne celle des invariants pairs de la seconde, et le résultat analogue pour leur divisibilité par δ que donne un autre travail de l'auteur [J. Reine Angew. Math. 180, 1-43 (1938)], ainsi que les réciproques partiels de ces résultats. L'auteur espère que son travail récent [J. Reine Angew. Math. 186, 80-90 (1944); ces Rev. 7, 111] permettra d'obtenir des relations plus générales entre les 2-groupes de Sylow de ces groupes, et, plus généralement, entre les p -groupes de Sylow des groupes des classes d'idéaux de couples appropriés de corps quadratiques, et cite un résultat de Scholz [J. Reine Angew. Math. 166, 201-203 (1932)] dans cette direction, où $p=3$ et où les corps sont $k(\sqrt{d})$ et $k(\sqrt{-3d})$.

M. Krasner (Paris).

Source: Mathematical Reviews,

Vol 3, No. 3

Smul
1946

REDEI, LADISLAUS

Redei, Ladislaus. Über einige merkwürdige Polynome in endlichen Körpern mit zahlentheoretischen Beziehungen. Acta Univ. Szeged. Sect. Sci. Math. 11, 39-54 (1946).

Let Q denote the $GF(p^n)$, $p \neq 2$. The author first remarks that a polynomial in Q , all of whose values are squares in Q , is not necessarily a square [see Dickson, Trans. Amer. Math. Soc. 10, 109-122 (1909)]. Next he defines

$$\begin{aligned} \Phi_{+1}(x) &= \frac{1}{2} \{1 + x^{1(\sigma+1)} + (1-x)^{1(\sigma-1)}\}, \\ \Phi_{-1}(x) &= 2x^{-1} \{1 + x^{1(\sigma+1)} - (1-x)^{1(\sigma-1)}\} \end{aligned}$$

and two similar polynomials $\Phi_{-1}(x)$, $\Phi_{--}(x)$; also four polynomials

$$\varphi_{\sigma}(x) = (1 + px^{1(\sigma-1)} - 1 + \sigma(1-x)^{1(\sigma-1)}), \quad p, \sigma = \pm 1.$$

The values of $\varphi_{\sigma}(x)$ are all squares in Q ; indeed,

$$\Phi_{\pm\sigma}(x) = \varphi_{\sigma}^2(x).$$

Other typical results are

$$\begin{aligned} 1 + x^{1(\sigma-1)} &= \varphi_{+1}(x)\varphi_{-1}(x), & 1 - x^{1(\sigma-1)} &= \varphi_{-1}(x)\varphi_{--}(x), \\ \varphi_{+1}(x) &= A(x) + xB(x), & \varphi_{-1}(x) &= 2\{A(x) + B(x)\}, \\ \varphi_{-1}(x) &= A(x), & \varphi_{--}(x) &= -2B(x), \end{aligned}$$

where $\{(1+x)(1+x^p) \cdots (1+x^{p^{n-1}})\}^{1(\sigma-1)} = A(x^2) + xB(x^2)$.
L. Carlitz (Durham, N. C.)

Source: Mathematical Reviews. Vol. 9, No. 3

Field ⁵
Algebra ^{7/6}
Number theory ^{7/6}

REDEL, LADISLAUS

Rédel, Ladislaus. Über eindeutig umkehrbare Polynome in endlichen Körpern. Acta Univ. Szeged. Sect. Sci. Math. 11, 85-92 (1946).

The main result of the paper is contained in the following theorem. Let k denote the $GF(q)$, $q=p^r$, $p>2$; suppose that $(n, q+1)=1$ and let α denote a nonsquare in k . Put $(x+\alpha)^n = g(x) + h(x)\alpha$, where $\alpha \in GF(q^2)$ and $g(x), h(x) \in k[x]$. Then the rational function $f_n(x) = g(x)/h(x)$ represents a permutation on $0, 1, \dots, p-1$. If P_n denotes the permutation $x \rightarrow f_n(x)$, its order is the smallest positive integer r such that $n^r \equiv 1 \pmod{q+1}$. The P_n constitute an Abelian group of order $\varphi(q+1)$; in particular, $f_m(f_n(x)) = f_{mn}(x)$. From this it follows that for n odd one can always construct rational functions of degree n that represent permutations on $0, 1, \dots, p-1$. L. Carlitz (Durham, N. C.).

Algebra
Field

Source: Mathematical Reviews,

Vol 8, No. 3

Smith

REDEI, L

Rédei, L. Bemerkung zu meiner Arbeit "Über die Gleichungen dritten und vierten Grades in endlichen Körpern." Acta Univ. Szeged. Sect. Sci. Math. 11, 184-190 (1947). [The paper referred to in the title appeared in the same vol., 96-105 (1946); these Rev. 8, 138.] Let k denote the GF(p), $p > 3$, and put

Algebra

$$\varphi_n(x) = \binom{n}{1} + \binom{n}{3}x + \binom{n}{5}x^2 + \dots$$

For the cubic $f(x) = a_0x^3 + a_1x^2 + a_2x + a_3$, $a_i \in k$, put $\Delta = -27f(a_1/3a_0)/a_2D$, where D is the discriminant of $f(x)$. The following criterion is proved. Let ν be the number of roots of $f(x) = 0$ in k . Assume $\Delta \neq 0$. Then $\nu = 1$ if and only if $\varphi_{\nu+1}(-3\Delta) = 0$; $\nu = 3$ if and only if $\varphi_r(\Delta) = 0$, where $r = [(q+1)/3]$. Use is made of the following theorem. The discriminant of a polynomial in k without repeated factors is a square in k if and only if the number of irreducible factors of even degree is an even number. The author gives a simple proof of this theorem; it may be noted that for $t = 1$, it reduces to a theorem of Stickelberger [Verh. 1. Int. Math. Congr., Zürich, 1897, pp. 182-193]. *L. Carlitz.*

Source: Mathematical Reviews, 1948, Vol 9, No. 2

Somebody

Rédei, L.

Rédei, L., und Sz.-Nagy, B. Eine Verallgemeinerung der Inhaltsformel von Heron. Publ. Math. Debrecen 1, 42-50 (1949).

The following theorem is proved in an elementary manner. Let I and J denote the areas of two polygons $A_1A_2 \dots A_m$ and $B_1B_2 \dots B_n$ in the Euclidean plane. Then

$$16IJ = \sum_{i=1}^m \sum_{k=1}^n [(A_iB_k)^2(A_{i+1}B_{k+1})^2 - (A_iB_{k+1})^2(A_{i+1}B_k)^2].$$

In particular,

$$16I^2 = \sum_{i=1}^m \sum_{k=1}^m [(A_iA_k)^2(A_{i+1}A_{k+1})^2 - (A_iA_{k+1})^2(A_{i+1}A_k)^2].$$

Moreover, these expressions are unique, in the sense that they cannot be replaced by any other polynomial functions of the distances A_iB_k or A_iA_k , respectively. The theorem is extended from polygons to closed curves. Let r denote the distance from the point with parameter u on one curve to the point with parameter v on the other; then the product of the areas is given by

$$8IJ = \iint r^2 \left(r \frac{\partial^2 r}{\partial u \partial v} - \frac{\partial r}{\partial u} \frac{\partial r}{\partial v} \right) du dv,$$

the range of values of u and v being such as to take each point all round its curve.

H. S. M. Coxeter.

Source: Mathematical Reviews, 1950 Vol 11 No. 2

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REDEI, L.

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Rédei, L. Kurzer Beweis eines Satzes von Vandiver über
 endliche Körper. Publ. Math. Debrecen 1, 99-100 (1949).
 The theorem in question is as follows. Let $q = 1 + mc$ and
 let g be a generator of the multiplicative group of $GF(q)$.
 Let (i, j) denote the number of solutions of $1 + g^{i+rn} = g^{j+sn}$
 ($r, s = 0, \dots, c-1$). Let $A_{hk} = \sum_{i,j=0}^{c-1} (i, j)(i+h, j+k)$. Then

$$A_{hk} = \begin{cases} (c-1)^2 + c(m-1), & m | h, k \\ c^2, & m \nmid h, k, h-k, \\ c^2 - c, & \text{otherwise.} \end{cases}$$

L. Carlitz (Durham, N. C.).

Source: Mathematical Reviews, Vol 12, No. 2

Algebra
Field

Smul upj

Redei, L.

Redei, L. and Reni, A. On the representation of the numbers $1, 2, \dots, N$ by means of differences. Mat. Sbornik N.S. 24(66), 385-389 (1949). (Russian)

[The authors' names appear in non-Russian publications as Rédei and Rényi.] Let $H(n)$ denote the set $\{1, 2, \dots, n\}$. A set B of integers is called a basis of $H(n)$ if, given any $k \in H(n)$, the equation $k = a_1 + \dots + a_r$ is soluble for some $a_i \in B$. The smallest possible number of elements in a basis of $H(n)$ is denoted by n^* , and the problem is to investigate the behaviour of n^* as $n \rightarrow \infty$. It is almost trivial that $\sqrt{2} \leq n^*/\sqrt{n} \leq 2 + 1/\sqrt{n}$, for $n \leq (g^*)^2$ and $\{1, 2, 3, \dots, k, 2k, 3k, \dots, k^2\}$ is a basis of $H(k^2 - 1)$. The authors show that, in fact, $\lim_{n \rightarrow \infty} n^*/\sqrt{n}$ exists, and

$$(1) \quad \left(2 + \frac{4}{3\pi}\right) \leq \lim_{n \rightarrow \infty} \frac{n^*}{\sqrt{n}} \leq \left(\frac{2}{3}\right)^2$$

Proof. Take any integer $v \geq 1$, any $\epsilon > 0$, and some $\delta > 0$ such that $\delta v^*/\sqrt{v} < \epsilon/2$. Then a number $n_0(v, \epsilon)$ can be found such that, for $n > n_0(v, \epsilon)$, $v^*/\sqrt{n} < \epsilon/2$ and there exists some prime q in the range $(n/v)^{1-\delta} < q < (1+\delta)(n/v)^{1-\delta}$. Write $m = q^2 + q + 1$. By a theorem due to J. Singer [Trans. Amer. Math. Soc. 43, 377-385 (1938); see also I. Vijayaraghavan and S. Chowla, Proc. Nat. Acad. Sci. India. Sect. A. 15, 194 (1945); these Rev. 7, 505] there exist numbers a_1, a_2, \dots, a_r such that, given any d in $0 \leq d < m$, either $a = a_i + d$, or $a - m = a_i - d$, is soluble. If now $\{b_1, \dots, b_s\}$ denotes a basis of $H(v)$, then the set $\{a_i + mb_i\}$ ($0 \leq i \leq r$, $1 \leq k \leq s$) is a basis of $H(mv)$, and so $(mv)^* \leq (q+1)v^*$. But $n < mv$, and therefore

$$n^* \leq (q+1)v^* < \left\{ (1+\delta) \left(\frac{n}{v}\right)^{1-\delta} + 1 \right\} v^*$$

Thus, for any v , any $\epsilon > 0$, and $n > n_0(v, \epsilon)$ we have $n^*/\sqrt{n} \leq v^*/\sqrt{v} + \epsilon$; hence n^*/\sqrt{n} converges to its precise lower bound, and the right-hand inequality in (1) now follows in view of $\delta^* = 4$.

To complete the proof write $k = n^*$, and let $\{b_1, \dots, b_k\}$ be a basis of $H(n^*)$. Then, for $1 \leq |j| \leq n$, the equation $t = b_s - b_j$ ($1 \leq s, j \leq k$) has at least one solution. Hence

$$2 \sum_{t=1}^n \cos tx + k^2 - 2n \sum_{s=1}^k \cos (b_s - b_j)x = \sum_{t=1}^n |\cos tx| \geq 0.$$

But, for $x = 3\pi/(2n+1)$,

$$2 \sum_{t=1}^n \cos tx < -\frac{2}{3\pi}(2n+1) - 1.$$

Hence $(2n+1)(1+2/3\pi) < n^*$, and the required result follows at once. [The reviewer observes that the first inequality on line 5 of p. 388 should be $\delta v^*/\sqrt{v} < \epsilon/2$.]

L. Mirsky (Sheffield).

Source: Mathematical Reviews,

Vol 11 No. 1

REDEI, L.

MW

Rédei, L. Die Reduktion des gruppentheoretischen Satzes von Hajós auf den Fall von p-Gruppen. Monatsh. Math. 53, 221-226 (1949).

It is shown that it is sufficient to prove the theorem (H) of the preceding review for the case when the group G is a prime power group. If the general group G can be represented as in (1) then it can also be represented as the product

$$(2) \quad G = [\gamma_1 \beta_1]_{p_1} \cdots [\gamma_m \beta_m]_{p_m} [\rho_1]_{r_1} \cdots [\rho_v]_{r_v}$$

where γ_i, β_i are of orders p_i and q_i ($p_i \neq q_i; i = 1, 2, \dots, m$) and ρ_j is of order $r_j^{c_j}$ ($c_j \geq 2; j = 1, 2, \dots, v$); here p_i, q_i and r_j are prime. In this representation the elements β_i and ρ_j may be replaced by $\beta_i^{k_i}$ and $\rho_j^{l_j}$, where k_i is arbitrary and l_j is prime to r_j . The assumption is made that (H) is false for G but true for prime power groups. By choosing k_i and l_j suitably it is shown that the unit element can be expressed as a product of different elements $\gamma_i \beta_i$ and ρ_j , and therefore occurs twice on the right of (2), which gives a contradiction. The proof, which is not easy, is inductive and makes no use of the group ring Γ .

R. A. Rankin.

Source: Mathematical Reviews,

Vol. 11 No. 5

REDEI, L.: The Reduction of the Group Theoretical Theorem of Hajós in the Case of p-Groups.

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REDEI L

Rédei, L. Über das Dreieckpaar. Acad. Repub. Pop. Române. Stud. Cerc. Mat. 1, 87-137 (1950). (Romanian and German. Russian summary)

Given two equally oriented triangles A, B in E^2 with sides a_1, a_2, a_3 and b_1, b_2, b_3 , there is exactly one affinity $S(A, B)$ which carries a_i into b_i . If a_i also denotes the length of the side a_i and $a_i = a_1, \dots$, put

$$H(a_g, b_k) = a_g^2(-b_k^2 + b_{k+1}^2 + b_{k+2}^2) + a_{g+1}^2(b_k^2 - b_{k+1}^2 + b_{k+2}^2) + a_{g+2}^2(b_k^2 + b_{k+1}^2 - b_{k+2}^2)$$

$g, k = 1, 2, 3$. Then $H(a_g, b_k) = H(a_{g+1}, b_{k+1})$ and

$$H(a_i, b_i) \leq 2^{-1}(H(a_1, a_1) + H(b_1, b_1))$$

is necessary and sufficient for $S(A, B)$ to be a contraction, that is to decrease all distances in the plane (not only $a_i \geq b_i$). The problem turns out to be related to the following: If A is subjected to a rotation yielding \bar{A} , to find the positions of \bar{A} for which the mixed area $F(\bar{A}, B)$ is maximal. It is shown that there are at most 9 positions of \bar{A} for which $F(\bar{A}, B)$ reaches a relative maximum. The corresponding 9 values are given, partly in terms of the above $H(a_g, b_k)$. Particular cases are discussed in which there are fewer than 9 values.

H. Busemann (Los Angeles, Calif.)

Source: Mathematical Reviews,

Vol. 12 No. 7

Geometry
Topology

SMW

REDEL, L.
~~Redel, L.~~

1285

Rédei, L. Ein Beitrag zum Problem der Faktorisierung von endlichen Abelschen Gruppen. Acta Math. Acad. Sci. Hungar. 1, 197-207 (1950). (German. Russian summary)

The two papers by Hajós reviewed above decide the truth or falsity of the proposition (P) (see first review) for finite cyclic groups of order n except when n is of the forms $p^e q^f$, $p^e q r$, $p q r s$, where p, q, r and s are different primes and e, f are positive integers. The author proves that (P) is true for finite cyclic groups of orders p^e , $p q$ and $p q r$. The subsets A, B occurring in a factorisation $g = AB$ are made to correspond to polynomials $A(x), B(x)$ as described in the review of the first paper of Hajós. The relation $A(x)B(x) \equiv 0 \pmod{x^n - 1}$ shows that $A(x) = \phi_1(x)f_1(x)$, $B(x) = \phi_2(x)f_2(x)$ where

$$\phi_1(x)\phi_2(x) \equiv 1 + x + x^2 + \dots + x^{n-1}$$

and hence each polynomial $\phi_i(x)$ consists of products of certain of the polynomials $F_d(x)$ for $d|n$, where $F_d(x)$ is the cyclotomic polynomial of the d th roots of unity. Several alternative possible factorisations have to be considered before it is possible to conclude that one of A and B is divisible by a group $(x^e - 1)$, and the argument is too detailed to admit a brief description. K. A. Rankin.

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RSH

Mathematical Reviews, Vol. 11, No.

REDEI, L.

~~Rédei, L.~~ Elementarer Beweis und Verallgemeinerung einer Reziprozitätsformel von Dedekind. Acta Sci. Math. Szeged 12, Leopoldo Fejér et Frederico Riesz LXX annos natis dedicatus, Pars B, 236-239 (1950).

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If $F_n(x) = x^{n-1} + \dots + x + 1$ and if the positive integers m and n are relatively prime, there are uniquely determined polynomials $X_{mn}(x)$ and $X_{nm}(x)$ of degrees $n-1$ and $m-1$ respectively such that: (A) $F_n(x)X_{mn}(x) + F_m(x)X_{nm}(x) = 1$. They are given by:

$$X_{mn} = \sum_{k=0}^{n-1} (-\{km'/n\} + \{(k-1)m'/n\} + \{-m'/n\} - \{-2m'/n\})x^k,$$

if the integers m' and n' are chosen such that $mm' + nn' = 1$ and where $\{x\} = x - [x] - \frac{1}{2}$ ($[x]$ is the largest integer $\leq x$). Now, taking $x = 1 + i$ in (A) and equating the coefficients of i^r , the reciprocity formula

$$S_{mn} + S_{nm} = (12mn)^{-1}(m^2 - 3mn + n^2 + 1)$$

can be obtained, where $S_{mn} = \sum_{k=1}^{m-1} \{k/n\} \{mk/n\}$.

H. D. Kloosterman (Leiden).

Source: Mathematical Reviews, Vol 11, p. 9

REDEI, L.

Rédei, L., und Szele, T. Die Ringe "ersten Ranges."
Acta Sci. Math. Szeged 12, Leopoldo Fejér et Frederico
Riesz LXX annos natis dedicatus, Pars A, 18-29 (1950).
An Abelian group G has rank 1 whenever any two cyclic subgroups, not 0, have intersection, not 0; and G is locally cyclic whenever any two of its elements generate a cyclic subgroup. The authors give a derivation of the well-known classification of these groups; and they give a survey of all the rings with locally cyclic additive groups. Apart from trivial rings these are just the well-known subrings of the field of rational numbers and the direct sums of certain trivial rings and finite rings derived from cyclic groups of prime power order.

R. Baer (Urbana, Ill.)

Source: Mathematical Reviews,

Vol. 12, No. 3 .

SMA

Rédei, L.

4

Algebra
Number Theory

Rédei, L. Über die Wertverteilung des Jacobischen Symbols. Acta Univ. Szeged. Sect. Sci. Math. 13, 242-246 (1950).

Let m be an odd, square free integer, (x/m) the Jacobi symbol, and call $\sum_{\alpha < x < \beta} (x/m)$ the quadratic excess in the interval (α, β) . Denote by $A_1, \dots, A_8, B_1, \dots, B_{10}, C_1, \dots, C_{12}$ the quadratic excesses in the subintervals got by dividing $(0, m)$ into 8, 10, and 12 equal parts, respectively. Let h_k denote the class number of $R(\sqrt{-km})$. Dirichlet [J. Reine Angew. Math. 21, 134-155 (1840)] and Gauss [Werke, v. 2, Göttingen, 1876, remarks by Dedekind pp. 301-303] found expressions for the A_i in terms of h_1 and h_2 , and, when $3 \nmid m$, for the C_i in terms of h_1, h_2 . The author here derives an expression for the B_i in terms of h_1, h_2 , in case $5 \nmid m$ and $m \equiv 3 \pmod 4$.
G. Whaples (Bloomington, Ind.)

Wp

Source: Mathematical Reviews,

Vol. 12 No. 8

REdei, L.

Rédei, L. A short proof of a theorem of Št. Schwarz concerning finite fields. Časopis Pěst. Mat. Fys. 75, 211-212 (1950). (English. Czech summary)
The author gives another proof of a formula of Schwarz [Časopis Pěst. Mat. Fys. 74, 1-16 (1949); these Rev. 11, 328] for the number of irreducible factors of degree k of the polynomial $x^m - a$ in a finite field whose characteristic does not divide m .
H. Davenport (London).

Sm

Source; Mathematical Reviews,

Vol. 13 No. 1

REDEI, L.

Fáry, L. und Rédei, L. Der zentralsymmetrische Kern und die zentralsymmetrische Hülle von konvexen Körpern. Math. Ann. 122: 205-220 (1950).

Topology

Let K be a fixed convex body with inner points in the Euclidean n -space and let Z denote any convex body which is central-symmetric with respect to some point. A body Z contained in K and having maximum volume $V(Z)$ is called a central-symmetric kernel of K and denoted by K_* . A body Z containing K and having minimum volume is called a central-symmetric hull of K and denoted by K^* . The numbers $c_*(K) = V(K_*)/V(K)$, $c^*(K) = V(K)/V(K^*)$ are called the inner and outer centricities of K . The authors show that K_* is unique while K^* in general is not. A sufficient condition for the uniqueness of K^* is that all the boundary points of K are regular, that is, no boundary point is contained in more than one supporting hyperplane. The proofs are based on the following more general results. Let K and L be convex bodies, $v \neq 0$ a fixed vector, and t a real variable. Then the n th root of the volume $V_n(t)$ of $K \cap (L + tv)$ is a concave function in that t -interval in which it is positive. This follows

easily from the Brunn-Minkowski theorem. The condition for linearity yields the uniqueness of K_* if L is chosen as the body K . Furthermore, it is shown by elementary means that the volume $V^*(t)$ of the convex hull of $K \cup (L + tv)$ is a convex function of t . This is used in the investigation of the central-symmetric hulls. In the case where K is a simplex K_* and a K^* are described and the centricities are determined as functions of the dimension n . For c_* an integral expression (communicated to the authors by P. Turán) is given. W. Fenchel (Princeton, N. J.).

Handwritten signature

Source: Mathematical Reviews,

Vol 12 No. 7

REDEI, L.
~~Redei, L.~~

250

Rédei, L. Eine Determinantenidentität für symmetrische Funktionen. Acta Math. Acad. Sci. Hungar. 2, 105-107 (1951). (German. Russian summary)

Let p_i ($i=0, 1, \dots, n$) denote the power sums and s_i ($i=0, 1, \dots, n$) the elementary symmetric functions of the unknowns x_1, \dots, x_n ; let $s_0=1$ and $s_i=0$ if $i>n$. In analogy with the well-known formula $|p_{i+k}| = \prod_{i<k} (x_i - x_k)^2$ it is proved that $|s_{i-k} - s_{i+k}| = \prod_{i<k} (1 - x_i x_k)$. It is further shown how this enables the elementary functions of the products $x_i x_k$ to be expressed in terms of the s_i .

O. Taussky-Todd (Washington, D. C.)

Sm

Source: Mathematical Reviews,

Vol 13 No. 7

REDEI, L.

Rédei, L., und Szép, J. Über die endlichen nilpotenten Gruppen. Monatsh. Math. 55, 200-205 (1951).
 Let G be a finite nilpotent group, S a subgroup, and a an element of G of prime-power order p^e . Let $S(a)$ be the group generated by adjoining a to S , and $S(a^p)$ by adjoining a^p . The central result states that $S(a^p) = S(a)$ implies $S(a) = S$, with the analogous implication for the corresponding commutator groups. Several consequences are given, and examples to show that the condition of nilpotency cannot be dropped.
 R. C. Lyndon (Princeton, N. J.).

SMW

Source: Mathematical Reviews,

Vol. 13 No. 3

REDEI, L.

Mathematical Reviews
Vol. 14, No. 10
November, 1953
Algebra

Rédei, L. Über die Determinantenteiler. Acta Math.
Acad. Sci. Hungar. 3, 143-150 (1952). (Russian sum-
mary)

Let R be a commutative ring with unit element and let M be a matrix with coefficients in R . Let \mathcal{D}_k be the ideal generated in R by the determinants of order k extracted from M . Then it follows from the theory of elementary divisors that, when R is a Dedekind ring, we have $\mathcal{D}_k \supseteq \mathcal{D}_{k-1} \mathcal{D}_{k+1}$ (where $\mathcal{D}_0 = (1)$). The author proves that, for any ring R , $m(k) \mathcal{D}_{k-1} \mathcal{D}_{k+1} \subseteq \mathcal{D}_k^2$, where $m(k)$ is the L.C.M. of the integers $1, \dots, k$. The proof depends on a new identity on determinants, which is of the following form. Let D be a determinant of order $2k$, d a minor of order $k+1$ of D and Δ its complementary minor (taken with its sign); then $d\Delta$ is expressible as a linear combination of products of minors of order k by their complementary minors (with rational but not integral coefficients). A counterexample shows that it is not always true that $\mathcal{D}_{k-1} \mathcal{D}_{k+1} \subseteq \mathcal{D}_k^2$. In the statement of theorem 2, line 7 of the statement, $k+1$ should be replaced by $k-1$.

G. Chevalley (Nagoya).

REDEI, L.

Mathematical Reviews
Vol. 14 No. 9
October 1953
Algebra

Rédei, L. Kurzer Beweis der Waring'schen Formel. Acta
Math. Acad. Sci. Hungar. 3, 151-153 (1952). (Russian
summary)

A simple proof, by induction, of the formula, due to
Waring, that expresses $x_1^k + x_2^k + \dots + x_n^k$ in terms of the
elementary symmetric functions of x_1, x_2, \dots, x_n .

H. W. Brinkmann (Swarthmore, Pa.).

REDEI, L.

Mathematical Reviews
Vol. 14, No. 10
November, 1953
Algebra

✓ Rédei, L. Vollideale in weiteren Sinn. I. Acta
Math. Acad. Sci. Hungar. 3 (1952), 243-268 (1953).
(Russian summary)

A ring is a vollidealring (\mathcal{V} -ring) if every submodule of the ring is an ideal, while a ring is a \mathcal{V} -ring in the extended sense (e- \mathcal{V} -ring) if each of its subrings is an ideal. The author characterized all \mathcal{V} -rings in a previous paper *Monatsh. Math.* 56, 89-95 (1952); these Rev. 14, 1277. This paper characterizes all e- \mathcal{V} -rings that are generated by a single element. If R is such an infinite e- \mathcal{V} -ring, then necessarily R is of the form $xI[x]/x(x-a)A$, where I is the ring of integers and A is a product of ideals of the form $(x(x-b), p)$, $p \nmid b$, or of the form $(x-b, p)$ taken over distinct prime factors p of A . Similar but more complicated formulas give all the finite e- \mathcal{V} -rings generated by a single element.

R. E. Johnson (Northampton, Mass.).

REDEI, L.

Mathematical Reviews
Vol. 14 No. 7
July - August, 1953
Algebra

Redei, L. Die Verallgemeinerung der Schreierschen Erweiterungstheorie. Acta Sci. Math. Szeged 14, 252-273 (1952).

If Σ and S are algebraic systems of the same kind (semigroups, groups, semirings, or rings), the Schreier extension problem is to characterize all algebraic systems \mathfrak{S} such that $\mathfrak{S}/\Sigma \cong S$. The author obtains results for these four algebraic systems analogous to the following results for semigroups. If S and Σ are semigroups with identity elements e and ϵ respectively, then a Schreier product $S \circ \Sigma$ of S and Σ is an algebraic system consisting of the product set $S \times \Sigma$ with an operation defined by $(a, \alpha)(b, \beta) = (ab, a^b \alpha^b \beta)$, where a^b, α^b ($a \in S, \alpha \in \Sigma$) are any functions of their arguments satisfying the initial conditions $a^e = a, e^a = \epsilon, \alpha^e = \alpha, \epsilon^a = \epsilon$. $S \circ \Sigma$ is a semigroup if and only if (1) $(\alpha\beta)^a = \alpha^a \beta^a$, (2) $\alpha^b \beta^c = \beta^c (\alpha^b)^c$, (3) $a^b b^c = (ab)^c$ hold. All semigroups \mathfrak{S} such that $\mathfrak{S}/\Sigma \cong S$ are Schreier products $S \circ \Sigma$. R. E. Johnson.

the elements $\alpha_1 u_1 + \dots + \alpha_n u_n$ with $u_n \in W_n$ and $\sum |\alpha_n| \leq 1$ form a neighborhood of the origin in $R(A)$. It is shown that each of the spaces $P(O)$, $R(\Omega - O)$ can be identified as the dual of the other, the dual of a space being the set of all continuous linear functionals defined on it. As remarked by the author in a footnote appended at the proofreading stage, this duality relationship was proved independently by C. da Silva Dias [Thesis, Univ. of São Paulo, 1951; these Rev. 13, 249], and also by A. Grothendieck. A number of further relations between $P(O)$ and $R(\Omega - O)$ follow from the paper of Dieudonné and Schwartz already referred to. These spaces are weak duals of each other. Their strong topologies coincide with the topologies as originally defined. Weak and strong convergence of sequences are the same things in each space. A linear subspace of $R(\Omega - O)$ is weakly closed if it is sequentially closed.

The latter part of the paper deals with linear mappings of $P(O_1)$ into $P(O_2)$. Each such mapping determines and is determined by a function $a(\lambda_1, z_2)$ analytic on $A_1 \times O_2$, where $A_1 = \Omega - O_1$. The mapping $x_1 \rightarrow x_2$ is then given by $x_2(z_2) = (1/2\pi i) \int x_1(t_1) a(t_1, z_2) dt_1$, with the integral taken over a suitable path. Corresponding results hold for linear mappings of $R(A_2)$ into $R(A_1)$. Relations between weak and strong continuity are considered for such mappings. Finally, mappings defined by differentiation, integration, or multiplication by a function are considered as examples.

A. E. Taylor (Los Angeles, Calif.).

continuous in $|z| \leq 1$; the estimate $\sum_{k=0}^n |a_k| = o(n^{1/2})$ is the best possible for functions $a(z)$ with uniformly convergent power series in $|z| \leq 1$.

G. G. Lorentz (Detroit, Mich.).

Redei, Ladislaus

HUNG .

1 - F/W

mk
Redei, Ladislaus. Bedingtes Artinsches Symbol mit Anwendung in der Klassenkörpertheorie. Acta Math. Acad. Sci. Hungar. 4, 1-29 (1953). (Russian summary)
The author gives an algorithm for constructing a class field of prime-power degree out of cyclic steps of prime degree. This algorithm is based on his Hauptsatz for the symbol appearing in the title. The Hauptsatz, though too complicated to state here, is an elementary theorem about abelian groups of prime-power order (when shorn of its class-field-theoretic garb).
J. Tate.

REDEI, LADISLAUS: Conditional Artins Symbol
With Application in the Class Theory

Jm

~~SECRET~~
REDEI, László

✓ Rédei, László. Life and work of Mihály Bauer. Mat.
Fapok 4, 241-262 (1953). (Hungarian)
A list of Bauer's mathematical papers is included.

REDEI, L.

Mathematical Reviews
Vol. 15 No. 2
Feb. 1954
Number Theory

Rédei, L. Die Existenz eines ungeraden quadratischen Nichtrestes $\neq 1 \pmod{p}$ im Intervall $1, \sqrt{p}$. Acta Sci. Math. Szeged 15, 12-19 (1953).

Nagell has proved that if $p \equiv \pm 1 \pmod{8}$, $p \neq 7$ or 23 , then there exists an odd prime $q < p^{\frac{1}{2}}$ such that $(q/p) = -1$; if $p \equiv 3$ or $5 \pmod{8}$, then there is a $q < 2p^{\frac{1}{2}} + 1$ or $(2p)^{\frac{1}{2}}$ such that $(q/p) = -1$. In the present paper the following sharper result is obtained. If $p \neq 3, 5, 7, 11, 13, 23, 59, 109, 131$, then there exists an odd prime $q < p^{\frac{1}{2}}$ such that $(q/p) = -1$. (It is noted in proof that part of this theorem had been proved earlier by T. Nagell [Ark. Mat. 1, 573-578 (1951); these Rev. 14, 247] and A. Brauer [Math. Z. 33, 161-176 (1931)].)

L. Carlitz (Durham, N. C.).

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Mathematical Reviews
Vol. 15 No. 3
March 1954
Algebra

7-8-54
LL

Szép, J., und Rédei, L. Eine Verallgemeinerung der
Kernischen Zerlegung. Acta Sci. Math. Szeged 15,
85-86 (1953).

Let G be a group with double chain condition for normal subgroups and with a (possibly empty) operator domain. The authors prove the following obvious generalisation of the Rehak-Krull-Schmidt theorem. If G is decomposed in the form $G = N_1 N_2 \dots N_n$, where the N_i are normal subgroups of G , no N_i is superfluous, and no N_i is the product of two proper normal subgroups, we put $N_i \cap N_j = D_{ij}$ and $\prod_{i=1}^n D_{ij} = D$. If another decomposition $D = M_1 M_2 \dots M_m$ of the same type is given in which the group corresponding to D coincides with D , then $m = n$ and after a suitable numbering $N_i D/D$ is centrally isomorphic to $M_i D/D$ in G/D . Moreover $G = N_1 N_2 \dots N_i M_{i+1} \dots M_n$ for $i = 1, 2, \dots, n$.

K. A. Hirsch (London).

L. REDEI.

"Denominators of determinants." p. 113 (ACTA MATHEMATICA ACADEMIAE SCIENTIARUM
HUNGARICAE, Vol. 3, No. 3, 1953, Budapest, Hungary)

SO: Monthly List of East European Accessions, L.C., Vol. 2 No. 7, July 1953, Uncl.

L. RUDBI.

"A brief proof for Waring's formulas." p. 151 (ACTA MATHEMATICA ACADEMIAE SCIENTIARUM HUNGARICAE, Vol. 3, No. 3, 1953, Budapest, Hungary)

SO: Monthly List of East European Accessions, L.C., Vol. 2 No. 7, July 1953, Uncl.

REDEI, L.

"The Conditioned Artin Symbol with an Application in the Class Field Theory." p. 1
(ACTA MATHEMATICA, Vol. 4, No. 1/2, 1953) Budapest, Hungary

SO: Monthly List of East European Accessions, Library of Congress, Vol. 3, No. 4,
April 1954. Unclassified.

REDEI, L.

"The 2-ring Class Group of the Quadratic Number Field and the Theory of the Pell Equation."
p. 31 (ACTA MATHEMATICA, Vol. 4, No. 1/2, 1953) Budapest, Hungary

SO: Monthly List of East European Accessions, Library of Congress, Vol. 3, No. 4,
April 1954. Unclassified.

REBEI, LASZLO.

Algebra. Budapest, Akademiai Kiado. (Algebra. bibl.) Vol. 1. 1954. RPB

SOURCE: East European Accessions List (EEAL), LC, Vol. 5, No. 2,
February 1956

"H Homomorphie theory of groups and rings."
Iozlemenyel, Budapest, Vol 1, No 1, 1954, p. 25

SO: Eastern European Accessions List, Vol 3, No 10, Oct 1954, Lib. of Congress

REDEI, L.

Rédei, Ladislaus. Über die Kantenbasen für endliche vollständige gerichtete Graphen. Acta Math. Acad. Sci. Hungar. 5, 17-25 (1954). (Russian summary)

A Kantenbasis is an oriented graph G such that for any two distinct vertices a and b of G there exists an oriented path in G leading from a to b , and another leading from b to a , and such that this property is lost when any edge is removed. The author shows how the Kantenbasis of $n+1$ vertices can be determined from those of $\leq n$ vertices. He shows also that no Kantenbasis has a Thomsen graph or complete 5-graph as a subgraph. From the latter result he concludes, erroneously, that every Kantenbasis is planar. (To construct a non-planar Kantenbasis take a Thomsen graph, subdivide each edge by taking the mid-point as a new vertex, select a vertex V of degree 3 in the resulting graph and direct each edge away from V . Finally join the two vertices distant four edges from V to V by two new edges directed to V .)
W. T. Tullis (Toronto, Ont.)

Topology
Geometry

✓ Rédei, Ladislaus. Über das Kreisteilungspolynom. Acta
Math. Acad. Sci. Hungar. 5, 27-28 (1954). (Russian
summary)

Let $F_n(x)$ be the n th cyclotomic polynomial. Then in the ring of polynomials with integer coefficients the ideal $(F_n(x))$ is generated by the polynomials $F_p(x^{n/p}) = (x^n - 1)/(x^{n/p} - 1)$, where p runs through the prime divisors of n . This theorem was stated, with an incorrect proof, in a previous paper [same Acta 1, 197-207 (1950); these Rev. 13, 623]. The first correct proof was given by the reviewer [Nederl. Akad. Wetensch. Proc. Ser. A. 56, 370-377 (1953); these Rev. 15, 503]. The author now gives a new proof, which is short and elegant.
N. G. de Bruijn (Amsterdam).

NEPEL, R. H. D. S. H. A. U. S.

Rédei, Ladislav. Über die Ringe mit gegebenem Modul.

Acta Sci. Math. Szeged 15 (1954), 251-254.

This paper contains a generalization of a theorem of R. A. Beaumont [Duke Math. J] 15 (1948), 367-369; MR

10, 10] and of a well-known theorem about the multiplication constants of a linear associative algebra. If M is a left R -module over a ring R with unit element, we take a set of linear generators ω_i of M , where i runs through an index set I . This means that every element of M may be written in the form $\sum_i a_i \omega_i$ (all summations are extended over I) with $a_i \in R$ and $a_i = 0$ for all $i \in I$ with a finite number of exceptions. The following theorem is proved. If we set $\omega_i \omega_j = \sum_k c_{ijk} \omega_k$ ($c_{ijk} \in R$; for all $i, j \in I$ we have $c_{ijk} = 0$ for all $k \in I$ with a finite number of exceptions), a multiplication in M is defined which makes M a ring if and only if $\sum_{i,j} (c_{rji} c_{iij} - c_{sji} c_{sij}) \omega_j = 0$ for all $r, s, t \in I$ and $\sum_i a_i c_{iir} \omega_i = \sum_{i,j} a_i c_{rji} \omega_j = 0$ for all $r \in I$ and for all $\{a_i\}$ with $\sum_i a_i \omega_i = 0$. Moreover, the ring satisfies the usual operator property $a(\alpha\beta) = (a\alpha)\beta = a(\alpha\beta)$ ($a \in R; \alpha, \beta \in M$), if and only if $\sum_i (ab - ba) c_{rji} \omega_i = 0$ for all $r, s \in I$ and for all $a, b \in R$. As applications of this theorem the above-mentioned property of multiplication constants and the theorem of Beaumont are given.

W. Peremans (Zbl 56, 264).

1 - F/N

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REDDEI, LASZLO

MS

Redei, László. Hungarian investigations in the theory
of finite groups. Magyar Tud. Akad. Mat. Fiz. Oszt.
Közl. 3 (1955), 315-325. (Hungarian)
Expository paper.

Redei

~~Ladislav~~, Redei, L.

2000

Rédei, Ladislaus. Zetafunktionen in der Algebra. Acta Math. Acad. Sci. Hungar. 6 (1955), 5-25. (Russian summary) 1 - F/W

Let n be a non-negative integer and \mathfrak{N} the set of numbers $1, 2, \dots, n$. Let A_1, A_2, \dots, A_n be subgroups of a group G and, for any $\mathfrak{M} \subseteq \mathfrak{N}$, let $A_{\mathfrak{M}}$ denote the subgroup generated by the elements of A_i for $i \in \mathfrak{M}$. Define

$$\varrho(z) = \varrho(z; A_1, A_2, \dots, A_n) = \sum_{\mathfrak{M} \subseteq \mathfrak{N}} (-1)^{|\mathfrak{M}|} (A_{\mathfrak{M}})^{-z}$$

where (S) denotes the number of elements in a set S and $\text{Re } z > 0$. The zeta-function associated with the subgroups A_i is $\zeta(z) = (\varrho(z))^{-1}$. These definitions apply also to rings and other algebraic structures, and limiting processes can be introduced as $n \rightarrow \infty$. The ordinary Riemann zeta-function is then a special case.

(over)

The author's main results apply to the case when G is a finite abelian group. To begin with, seven fairly straightforward theorems are proved, of which the following (Satz 5) is an example:

$$\sum_{\mathfrak{M} \subseteq \mathfrak{N}} (A_{\mathfrak{M}})^{-1} \varrho(z; A_{\mathfrak{M}} A_{\mathfrak{M}} / A_{\mathfrak{M}}, A_{\mathfrak{M}} A_{\mathfrak{M}} / A_{\mathfrak{M}}, \dots) = 1,$$

where x, y, \dots run through all the elements of $\Omega - \mathfrak{M}$.

For an abelian p -group P with i invariants, define

$$\varphi(z, P) = \prod_{i=0}^{i-1} (1 - p^{i-z}).$$

and if G is the direct product of s groups P_1, P_2, \dots, P_s , where P_k is a p_k -group and the p_k are different primes, put

$$\varphi(z, G) = \prod_{k=1}^s \varphi(z, P_k).$$

The author's main theorem (Satz 8) states that

$$\varrho(z; A_1, A_2, \dots, A_n) = \sum (H)^{-1} \varphi(z, G/H) \quad (n \geq 1),$$

where the summation is over those subgroups H of G .

2/3

which contain no A_i . This is proved with the aid of
 Delsarte's generalization of the Möbius function to
 abelian groups [Ann. of Math. (2) 49 (1948), 600-609; MR
 10, 9]. It follows fairly easily from this and Satz 5 that

$$0 \leq \rho(z; A_1, \dots, A_n) < 1,$$

for $n \geq 1, z = 1, 2, 3, \dots$. This result the author calls the
 inertia theorem for finite abelian groups. When $n \leq 2$ it
 holds also for all real $z \geq 1$, but does not hold in this general
 form for all n . In fact, no positive constants c, C exist
 such that $-c < \rho(z) < C$, for all real $z \geq 1$.

Various examples and further results are given. In
 particular it is mentioned that the results can be estab-
 lished without appealing to the basis theorem for finite
 abelian groups. Misprints occur on pp. 11 (lines 18, 21),
 17 (lines 2, 8, 22, 24), 19 (line 2).

R. A. Rankin.

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JKK

Rédei, Ladislaus

✓ Rédei, Ladislaus. Die gruppentheoretischen Zetafunktionen und der Satz von Hajós. Acta Math. Acad. Sci. Hungar. 6 (1955), 271-279. (Russian summary)

In an earlier paper [same Acta 6 (1955), 5-25; MR 17, 344] the author introduced a zeta-function associated with subgroups of an abelian group. He now shows how the theorem of Hajós can be expressed in terms of such zeta-functions.

Math

Let n be a non-negative integer and \mathfrak{N} the set of num-

bers $1, 2, \dots, n$. Let A_1, A_2, \dots, A_n be cyclic subgroups of a given finite abelian group G , and, for any $\mathfrak{M} \subseteq \mathfrak{N}$, let $A_{\mathfrak{M}}$ denote the subgroup generated by the elements of A_i for $i \in \mathfrak{M}$. Let B_i be the group of p_i the powers of elements of A_i , where p_1, p_2, \dots, p_n are prime numbers, not necessarily different. Let

$$\varrho_{\mathfrak{M}}(z) = \varrho(z; B_{i_1} A_{\mathfrak{M}} / A_{\mathfrak{M}}, \dots, B_{i_m} A_{\mathfrak{M}} / A_{\mathfrak{M}}),$$

where i_1, i_2, \dots, i_m are the different elements of $\mathfrak{N} - \mathfrak{M}$, and

$$\varrho(z; C_1, C_2, \dots, C_n) = \sum_{\mathfrak{M} \subseteq \mathfrak{N}} (-1)^{|\mathfrak{M}|} (A_{\mathfrak{M}})^{-z}$$

1/2
same as

RÉDEI, LADISLAUS

Here, for any finite set S , (S) denotes the number of elements of S . In particular, when \mathfrak{M} is the null set, $m=n$ and

$$e_m(z) = e_0(z) = e(z; B_1, B_2, \dots, B_n).$$

It is shown that Hajós's theorem is equivalent to the following result: If $(A_m) = p_1 p_2 \dots p_n$ and $e_m(1) = 0$ for all $\mathfrak{M} \subset \mathfrak{M}$ ($\mathfrak{M} \neq \mathfrak{M}$), then $e_0(r) = 0$ for $r = 2, 3, 4, \dots$. The proof is split into a series of ten lemmas and uses the author's inertia theorem proved in the paper referred to.

R. A. Rankin (Glasgow).

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Rankin

REDEL, L.

Math ✓ Rédei, L.; und Szép, J. Die Verallgemeinerung der Theorie des Gruppenproduktes von Zappa-Casadío. Acta Sci. Math. Szeged 16 (1955), 165-170.

Given are two groups G, Γ . The authors wish to describe all the groups $\mathcal{G} = G \cdot \Gamma$ that are products of two subgroups isomorphic to G and Γ , respectively. The case where the intersection $G \cap \Gamma$ is a normal subgroup, in particular the unit subgroup, of \mathcal{G} has been treated by Zappa [Atti 2º Congresso Un. Mat. Ital., Bologna, 1940, Edizioni Cremonese, Rome, 1942, pp. 119-125; MR 8, 367] and Casadio [Rend. Mat. e Appl. (5) 2 (1941), 348-360; MR 8, 251; 10, 855]. The authors treat the most general case. Their solution is however to unwieldy to be reproduced here.

K. A. Hirsch (London).

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~~Redei, Ladislaus~~ Rédei, Ladislaus

Rédei, Ladislaus: Die endlichen einstufig nichtnilpotenten Gruppen. Publ. Math. Debrecen 4 (1956), 303-324.

A finite group is said to be einstufig non-nilpotent if it is non-nilpotent but all its proper subgroups are nilpotent. Similarly it is einstufig non-abelian if it is non-abelian but has only abelian proper subgroups. It is known that the order of an einstufig non-nilpotent group is divisible by exactly two primes p and q , and that the commutator subgroup G' is the only normal Sylow subgroup. If the notation is chosen so that G' is a p -Sylow group, then the q -Sylow groups are cyclic and the order of G/G' is p^u where u is the exponent to which p belongs mod q . Finally $G'' = 1$ and G is einstufig non-abelian if and only if $G'' = 1$. If q^v is the order of the q -Sylow group of G , and therefore of G/G' , the numbers p and q^v are called the invariants of the einstufig non-nilpotent group G . To every pair of invariants p, q^v there corresponds a unique einstufig non-abelian group G , whose order is $p^u q^v$. At least one additional einstufig non-nilpotent group with invariants p, q^v exists if and only if u is even. Among these additional ones, when $u=2l$, there is exactly one of maximal order $p^{u+l} q^v = p^{3l} q^v$. Generating relations are given for these different groups with invariants p and q^v .

D. C. Murdoch (Vancouver, B.C.)

2
1
Murdoch

REDEI, LADISLAUS

✓ Rédei, Ladislaus. Äquivalenz der Sätze von Kronecker-Hensel und von Szekeres für die Ideale des Polynomringes einer Unbestimmten über einem kommutativen Hauptidealring mit Primzerlegung. Acta Sci. Math. Szeged 17 (1956), 198-202.

2
I-F/W

M.H.

Let R be a commutative principal ideal ring and let \mathfrak{A} denote the classes of associated non-zero numbers of R . The writer shows that the theorem of Szekeres [Amer. Math. Monthly 59 (1952), 379-386, p. 385; MR 13, 903] can be put in the following form. Let $0 = n_0 < n_1 < \dots < n_r$ ($r \geq 0$) be rational integers, $\sigma_1, \dots, \sigma_r \in \mathfrak{A}$, $f_k(x)$ ($1 \leq k \leq r$) polynomials with coefficients $\in \mathfrak{A}(\sigma_k)$ and of degree $< n_k - n_{k-1}$. Determine the polynomials $F_0(x), \dots, F_r(x)$ recursively by means of

$$F_0(x) = \sigma_1 \cdots \sigma_r,$$

$$\sigma_1 F_1(x) = [x^{n_1} + f_{11}(x)] F_0(x),$$

$$\sigma_2 F_2(x) = f_{12}(x) F_0(x) + [x^{n_2 - n_1} + f_{22}(x)] F_1(x),$$

.....

$$\sigma_r F_r(x) = f_{1r}(x) F_0(x) + f_{2r}(x) F_1(x) + \dots + [x^{n_r - n_{r-1}} + f_{rr}(x)] F_{r-1}(x).$$

1/2

Then the ideals of $R[x]$ are given by

Redei, Ladislaus

$$a = (F_0(x), \dots, F_r(x)).$$

This result is a generalized version of the theorem of Kronecker [Vorlesungen über Zahlentheorie, Bd. 1, Teubner, Leipzig, 1901, Lecture 18].

L. Carlitz.

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2/2

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^A
 Rédei, Ladislaus. Die einstufig nichtkommutativen
 endlichen Ringe. Acta Math. Acad. Sci. Hungar. 8
 (1957), 401-442. 2

An EN-ring (einstufig nichtkommutativen Ringe) is a noncommutative ring in which each subring is commutative. There are three immediate consequences of the definition of a finite EN-ring R : (i) any homomorphic image of R is either commutative or an EN-ring; (ii) R is generated by two noncommutative elements x and y ; (iii) the additive group R^+ of R is a p -group. Using these the author obtains a complete classification and characterization of finite EN-rings. A nilpotent finite EN-ring is either isomorphic with or a homomorphic image of an EN-ring defined by the relations $p^m x = p^n y = x^r = y^s = 0$, $x^2 y = xyx = yx^2$, $xy^2 = yxy = y^2 x$, and $pyx = pxy$, with the natural numbers m , n , r and s satisfying the inequalities $1 \leq m \leq n$, $r \geq 2$, $s \geq 2$, and $r \leq s$ if $m = n$. Conversely these relations always define a nilpotent finite EN-ring. The other two classes of finite EN-rings, those which contain one-sided zero-divisors and those which do not contain one-sided zero-divisors, are similarly characterized. (The analogous problem for groups has also been studied by the author [Publ. Math. Debrecen 4 (1955-56), 303-324; MR 18, 12].) W. E. Deskins (East Lansing, Mich.)

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 V/

1957, .

First Polytechnic Conference on the Technical University of Dresden. p. 69.
(GandMIA of East-Germania. Vol. 9, no. 1/2, 1957, Hungary,)

See: Monthly List of East European Accessions (MEAL) no. Vol. 6. no, 12, Dec. 1957.
Encl.

Country : Hungary E-2
Category : Analytical Chemistry - Analysis of inorganic substances
Abs. Jour : Referat Zhur - Khim, No 18, 1959 45503
Author : Redly, L.
Institut. : Not given
Title : New Methods for the Analysis of Aqueous Soil Extracts
Orig Pub. : Agrochem es Talaj, 7, No 5, 271-280 (1958)
Abstract : Rapid and simple complexometric methods have been developed for the determination of Ca, Mg, and SO_4^{2-} in aqueous soil extracts. The Ca is titrated with complexone III at pH 11-12 in the presence of murexide [ammonium purpurate] as indicator, while Mg is titrated at pH 9-10 in the presence of Eriochrome Black T. SO_4^{2-} is determined by an indirect method: the SO_4^{2-} is first precipitated with BaCl_2 , after which the excess Ba^{2+} is titrated with complexone III at pH 9-10 in the presence of

Card: 1/2

REDEI, L.; TURAN, P.

Data on the theory of algebraic equations of finite bodies. p. 223.

ACTA ARITHMETICA. (Polska Akademia Nauk. Instytut Matematyczny) Warszawa, Poland. Vol. 5, no. 2, 1959

Monthly List of East European Accessions (EEAI) LC, Vol. 9, no. 2, Feb. 1960

Uncl.

REDEY, L. (Budapest)

Investigation of the potential of polarized anodes. Periodica
polytechnica 4 no.3:219-232 '60. (EEAI 10:5)

1. Institut für Anorganische Chemie der Technischen Universität,
Budapest.

(Polarization) (Electric potential)
(Silver) (Aluminum) (Electrodes) (Anodes)

HOSSZU, Miklos, dr.; REDEI, Laszlo; FUCHS, Laszlo; ACZEL, Janos

Interpretation of functional equations by means of algebraic systems.
I. Mat kozl MTA 12 no.4:303-315 '62.

REDEI, Laszlo

On the 50th birthday of Gyorgy Hajos. Mat lapok 13 no.3-4:
217-227 '62.

REDEI, Otto; ZAMBORI, Zoltan

Development of the model assortment in the Szeged Textile Works.
Magy textil 17 no.4:145-148 Ap '65.

1. Szeged Textile Works, Szeged.

18

SOV/127-59-4-12/27

AUTHORS: Denisov, N.M., Zaretskiy, L.I., Kapelyushnikov,
L.Ye., Redekap, A.V., Sevost'yanov, I.M. and
Tereshchenko, N.A.

TITLE: A Portal Timber Stacker. (Portal'nyy krepuklad-
chik)

PERIODICAL: Gornyy zhurnal, 1959, Nr 4, p 56 (USSR)

ABSTRACT: This is a description of a portal timber stacker
- author's certificate Nr 109261, class 5s, 10₀₁.
There are 3 diagrams.

Card 1/1

REDEKOP, P.P.

Assembling and disassembling tower cranes with consolidated units.
Mekh. stroi. 21 no.3:19-20 Mr '64. (MIRA 17:3)

1. Glavnyy inzh. Upravleniya mekhanizatsii tresta Kemerovozhilstroy.

WOJTOWICZ, Mieczyslaw; KWIATEK, Ryszard; REDELBACH, Jerzy

Recurrent goiter according to data of the 2nd Surgical Clinic
of the Academy of Medicine in Poznan. Endokr. Pol. 16 no.5:
529-533 '65.

1. II Klinika Chirurgiczna AM w Poznaniu (Kierownik: prof. dr.
R. Drews).

REDEL'MAN, A.

All-Union Scientific and Technical Conference on the Planning of
Work and Wages. Biul. nauch. inform.: trud i zar. plata 5 no.5:
34-42 '62. (MIRA 15:7)
(Wages--Machinery industry--Congresses)

GRANOVSKIY, Ye.; REDEL'MAN, A.

Improve the establishment of work norms and planning of conveying
work. Sots. trud 7 no.10:86-93 0 '62. (MIRA 15:10)

(Machinery industry--Production standards)
(Material handling)

AVER'YANOV, V.; KUCHEROV, L. (Lozovaya, Khar'kovskaya obl.); NIKOL'SKIY, V. (Moskva); CHERNYSH, V. (Magadanskaya obl.); NEVZOROV, V. (Alma-Ata); RUSNYAK, A.; GRISHIN, G. (st.Emba, Aktyubinskaya obl.); OSIPOV, N. (Moskva); REDEMENKOV, V., inzh.

Exchange of experience. Radio no.8:36,39,41,48,52,54,57,58 Ag '63. (MIRA 16:9)

(Radio—Maintenance and repair)

LEKHNITSKIY, G.V., kand. tekhn. nauk; REDENSKIY, B.A., inzh.; BERLAD,
V.P., kand. tekhn. nauk

Methods for increasing the wear resistance of the cylinder
casing of Freon refrigerating compressors. Khol. tekhn. i
tekh. no.1:38-44 '65. (MIRA 18:9)

VERKHOSHAPOV, A.I.; REDNISKIY, V.A.

Centrifugal casting practices. Lit. proizv. no.9:24 5 '58.

(Centrifugal casting)

(MIRA 11:10)

SOV-128-56-9-12/16

AUTHORS: Moskovtsev, F.I., Polychalov, Yu.M., Verkhoshapov, A.I.,
Redenskiy, V.A., Kul'bitskaya, A.Ya., Dvali, G.S., Fomin,
S.F., Ebralidze, L.I., Shkundin, R.M.

TITLE: Letters to the Editor (Nam pishut)

PERIODICAL: Liteynoye proizvodstvo, 1958, Nr 9, pp 23-24 (USSR)

ABSTRACT: In the letters, an improved hammer head for pile-drivers
is described and a device for preventing the sticking of
molding matter by compressed air. Methods of casting the
ball bearing of the refrigerating compressor type ChAU-8
by centrifugal power, to produce distributing plates for
foundry heads from quartz sand, and to charge the blast
apparatus with metal shot, are also described.
There are 5 diagrams.

1. Pile drivers--Equipment 2. Molding materials--Performance
3. Compressed air--Applications 4. Ball bearings--Casting
5. Sand--Applications 6. Quartz--Applications 7. Shot blasting
--Equipment

Card 1/1

SAVEL'YEVA, T.N.; REDER, D.G., otv. red.; YERMOLAYEVA, N., red.
izd-va; ORLOVA, Z.N., tekhn. red.

[Agrarian system in Egypt during the Old Kingdom] Agrarnyi stroi
Egipta v period Drevnego tsarstva. Moskva, Izd-vo vostochnoi
lit-ry, 1962. 291 p. (MIRA 15:10)
(Egypt—Land tenure)

REDERER, Khuan G. [Roederer, Juan G.]

Acceleration and distribution of fast particles in interplanetary space. Geomag. i aer. 2 no. 6:1033-1040 N-D '62. (MIRA 16:1)

1. Natsial'naya kofissiya atomnoy energii, Argentina.
(Cosmic dust)

GILCA, Fl, candidat in stiinte economice; IONITA, M., candidat in stiinte economice; REDEȘ, D., candidat in stiinte economice

Aspects of economic efficiency of sunflower cultures on collective farms in the Calărăsi District. Probleme econ 16 no.1:117-123 Ja '63.

JANKOWSKI, Stanislaw; JANKIEWICZ, Mieczyslaw; REDES, Wacław.

Effect of certain factors on the results of determining nitrogen in grain by the Biuret method. Roczniki Wyz Szkola Rol Poznan no.13:127-134 '62.

1. Katedra Technologii Zboz, Wyzsza Szkola Rolnicza, Poznan

GOLGAN, I.; CIOBANU, C.; REDESCU, M.

The bronchial stump syndrome after pulmonary excision. Rumanian
M. Rev. 3 no.4:60-61 0-D '59.

1. Thoracic Surgery Department, "Filaret" Sanatorium, Bucharest.
(PNEUMONECTOMY, complications)
(BRONCHI, diseases)

REDEY, B.; CSIZMAZIA, F.

The detection of unknown enteric pathogens by conjunctival infection of guinea pigs. Acta microb. hung. 7 no.1:11-18 '60.

1. Public Health Laboratory, Veszprem.
(KERATOCONJUNCTIVITIS exper.)
(EYE diag.)
(ESCHARICHIA COLIA INFECTIONS diag.)
(DYSENTERY, BACILLARY diag.)

REDEY B

REDEY, Barnabas, dr.; REDEY, Barnabasne

Febrile disease due to air pollution in mines. Orv. hetil. 95
no.40:1103-1104 3 Oct 54.

(FUNGUS DISEASES,

lungs, in miners)

(LUNGS, dis.

fungus dis. in miners)

VOROS, S.; REDEY, B.; CSIZMAZIA, F.

Antigenic structure of a new enteropathogenic E. coli strain.
Acta microbiol. acad. sci. Hung. 11 no.2:125-129 '64.

1. Institute of Microbiology (Director: K. Rauss), University
Medical School, Pecs and Regional Public Health Station, Veszprem.

REDEY B.
(4170)

Orvostud. Egyetem Mikrobiol. Intezete, Pecs.

*Eljaras S. flexneri tomeges tenyesztesere. A method for mass cultivation of Shigella flexneri KISERL. ORVOSTUD. 1953, 5/6 (411-414) Illus. 2

For cultivation the Dole-medium is used, containing: meat extract 3%, yeast extract 3%, peptone 2%, sodium chloride 3%, disodium hydrogenphosphate 2%, and 4ml. (50%) dextrose solution per l. (pH = 7.3). The advantage of this modified medium is its cheapness, quick preparation, elimination of Seitz-filter, etc. With this method 2-3 g. dry bacterium substance per l. was produced.

Vitez - Budapest

SO: E. M. Volume 7, No. 8 - Sect. IV August 1954

1957, 1.

Uniform notations for geographical determination of position. Pt. 2. p. 16
(Geodesia es Kartografia Vol. 8, no.1, 1956 Budapest)

SO: Monthly List of East European Accession (MEM) 10. Vol. 4, no. 7, July 1957. Uncl.

REDEY, Istvan

"Surveying for architectural engineers" by Dr. Ing. Walter
Zill. Reviewed by Istvan Redey. Geod kart 16 no. 1: 75 '64.

s/035/62/000/007/072/083
A001/A101

AUTHOR: Rédey, István

TITLE: Changes of geodetic data in time

PERIODICAL: Referativnyy zhurnal, Astronomiya i Geodeziya, no. 7, 1962, 23,
abstract 7G174 ("Építőipari és közlek. műsz. egyet. tud. közl.",
1961, v. 7, no. 2, 3 - 11, Hungarian; Russian, English, French,
Spanish and German summaries)

TEXT: The author considers geodetic methods of studying changes in posi-
tion of reference points resulting from deformations of the Earth's crust. ✓

[Abstracter's note: Complete translation]

Card 1/1

W. J. ...

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REDEY, I.

"Dynamic altitude." Acta Technica, Budapest, Vol. 6, No. 3/4, 1951, p. 413.

SO: Eastern European Accessions List, Vol. 3, No. 11, Nov. 1954, L.C.

REBY, I.

REBY, I. Uniform notations for geographical determination of position.
(To be contd.) p.234.

Vol. 7, No. 4, 1955.
GEOGRAPHIA ET CARTOGRAPHIA
SCIENTIAE
Budapest, Hungary

So: East European Accession, Vol. 5, No. 5, May 1956

LOHONYAI, N. (Budapest, XI., Gellert ter 4); REDEY, L. (Budapest, XI., Gellert ter 4)

Data on the electrochemical behavior of aluminum(I)-ions.
Periodica polytechn chem 6 no.2:121-126 '62.

1. Lehrstuhl für Anorganische Chemie, Technische Universität,
Budapest. Vorgelegt von Prof.Dr.J.Prooszt.

REDEY, Laszlo

Investigation of the potential of polarized anodes. Magyar folyoirat
66 no. 3:112-118 Mr '60.

1. Budapesti Műszaki Egyetem Szervetlen Kémiai Tanszéke.

REDEY, T.

Work of our Association in promoting application of up-to-date
methods in transportation construction.

p. 385
Vol. 5, no. 9, Sept. 1955
MELYEPITESTUDOMANYI SZEMLE
BUDAPEST

SO: Monthly List of East European Accessions, (EEAL), LC, VOL. 5, no. 2
Feb. 1956

REBICHKIN, D. N.

Redichkin, D.N. "The effect of increased pressure on the thermal efficiency of cycles of internal combustion engines," In the symposium: Nauch. raboty Studentov gornometallurg. in-tov Moskvy, Moscow, 1949, p. 164-69

SO: U-1034, 29 Oct 53, (Letopis 'Zhurnal Stroyey, No. 16, 1949)

СЕРГЕЕВ, А.С., ФЕДОРКИН, В.А., ДОНЦОВА, Л.М.

Lower Permian sediments in the Crimean steppes. Dokl.
AN SSSR 136 no. 7:322-327 Py '64. (MIRA 17:7)

1. Institut geologii i razrabotkagoryudnikh iskopayemykh
Volga-Boskoye geologicheskoye upravleniye. Predstavleno
akademikom S.I. Dzhertakozya.

LETAVIN, A.I.; REDICHKIN, N.A.

Upper Carboniferous and lower Permian deposits in western
Ciscaucasia. Dokl. AN SSSR 142 no.4:903-905 F '62.

(MIRA 15:2)

1. Institut geologii i razrabotki goryuchikh iskopayemykh
AN SSSR i Volgo-Donskoye territorial'noye geologicheskoye
upravleniye. Predstavleno akademikom D.I. Shcherbakovym.
(Russia, Southern--Geology, Stratigraphic)

BANKOVSKIY, V.A.; REDICHKIN, N.A.

Schwagerin beds in the northeastern part of the Donets Basin.
Dokl.AN SSSR 104 no.3:456-458 S '55. (MLRA 9:2)

1.Predstavleno akademikom N.M.Strakhovym.
(Donets basin--Geology, Stratigraphic)

BANKOVSKIY, V.A. [Bankovs'kiy, V.A.] [deceased]; REDICHKIN, N.A. [Redychkin, N.A.]

Limestone-dolomite formation in the northeastern border of the
Donets Basin. Geol. zhur. 19 no.3:15-24 '59. (MIRA 12:10)
(Donets Basin--Limestone) (Donets Basin--Dolomite)

REDICHKIN, N. A.

REDICHKIN, N. A.: "The stratigraphy of the medium-black-coal deposits of the southeastern portion of the Greater Donbass, based on the foraminifera". Rostov na Donu, 1955. Rostov na Donu State U imeni V. M. Molotov. (Dissertation for the Degree of Candidate of Geologico-Mineralogical Sciences)

SO: Knizhnaya Letopis', No. 40, 1 Oct 55

REDICHKIN, N.A.

Data on the stratigraphy of the Middle Carboniferous at the south-eastern regions of the Large Donets Basin. Dokl. AN SSSR 103 no.3: 483-486 J1'55. (MLRA 8:11)

1. Trest "Rostovuglegeologiya", Rostov-na-Donu. Proizvodstvenno-issledovatel'skaya gruppa. Predstavleno akademikom D.V.Nalivkinym (Donets Basin--Geology, Stratigraphic)